

CLAIMS

1. A nucleic acid construct having a promoter sequence, at least one protein-encoding nucleotide sequence
5 linked to the promoter sequence in a translatable state, and a poly A signal sequence, wherein

the nucleic acid construct further contains, between the promoter sequence and the poly A signal sequence, a nontranslatable nucleotide sequence that is
10 different from the protein-encoding nucleotide sequence,

the protein-encoding nucleotide sequence linked to the promoter sequence in a translatable state and the nontranslatable nucleotide sequence that is different from the protein-encoding nucleotide sequence are linked
15 together so that they are transcribed from the nucleic acid construct in a single RNA molecule, and

the nontranslatable nucleotide sequence is selected from the group consisting of:

(1) a nucleotide sequence that encodes a protein
20 or a part of the protein; and

(2) a nucleotide sequence of an untranslated region that is naturally located on the 5' or 3' side of a nucleotide sequence that encodes a protein.

2. The nucleic acid construct according to
25 claim 1, wherein the nontranslatable nucleotide sequence is

located downstream of the protein-encoding nucleotide sequence linked to the promoter sequence in a translatable state.

3. The nucleic acid construct according to
5 claim 1, wherein the nontranslatable nucleotide sequence is located upstream of the protein-encoding nucleotide sequence linked to the promoter sequence in a translatable state.

4. The nucleic acid construct according to
10 claim 1, the protein-encoding nucleotide sequence linked to the promoter sequence in a translatable state encodes a reporter protein.

5. A vector containing the nucleic acid construct defined by claim 1.

15 6. An RNA containing at least one protein-encoding nucleotide sequence in a translatable state and a nontranslatable nucleotide sequence that is different from the protein-encoding nucleotide sequence, wherein the nontranslatable nucleotide sequence is selected from the
20 group consisting of:

(1) a nucleotide sequence that encodes a protein that is different from the protein-encoding nucleotide sequence in a translatable state, or a part of the protein; and

25 (2) a nucleotide sequence of an untranslated

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5 7. A method of detecting an activity of
altering expression of a target gene by a functional
nucleotide molecule, the method comprising the steps of:

(1) transcribing an RNA from the nucleic acid construct defined by claim 1 or the vector defined by claim 5 which has, as a nontranslatable nucleotide sequence, a nucleotide sequence selected from the group consisting of a nucleotide sequence that encodes a protein in a target gene, a part of the nucleotide sequence, and an untranslated region that is located on the 5' or 3' side of the nucleotide sequence that encodes the protein in the target gene;

(2) contacting a nucleotide molecule with the RNA transcribed in step (1);

(3) detecting the RNA in step (2) or a
20 translation product translated from the RNA; and

(4) detecting an activity of altering expression of the target gene by a functional nucleotide molecule based on the amount of the RNA or the translation product translated from the RNA detected in step (3).

25 8. A method of detecting an activity of

altering expression of a target gene by a functional nucleotide molecule, the method comprising the steps of:

(1) contacting a nucleotide molecule with the RNA defined by claim 6 which has, as a nontranslatable nucleotide sequence, a nucleotide sequence selected from the group consisting of a nucleotide sequence that encodes a protein in a target gene, a part of the nucleotide sequence, and an untranslated region that is located on the 5' or 3' side of the nucleotide sequence that encodes the protein in the target gene;

(2) detecting the RNA in step (1) or a translation product translated from the RNA; and

(3) detecting an activity of altering expression of the target gene by a functional nucleotide molecule based on the amount of the RNA or the translation product translated from the RNA detected in step (2).

9. A method of screening for a functional nucleotide molecule that alters expression of a target gene, the method comprising detecting an activity of altering expression of a target gene by a functional nucleotide molecule according to the method defined by claim 7 or 8.

10. The method of detecting an activity of altering expression of a target gene by a functional nucleotide molecule according to claim 7 or 8, wherein the nucleotide molecule is contacted with the RNA in a cell or

in a cell-free protein synthesis system.

11. A method of screening for a gene whose expression is altered by a nucleotide molecule, the method comprising the steps of:

5 (1) transcribing an RNA from the nucleic acid construct defined by claim 1 or the vector defined by claim 8 which has, as a nontranslatable nucleotide sequence, a nucleotide sequence selected from the group consisting of a nucleotide sequence that encodes a protein in an arbitrary
10 gene, a part of the nucleotide sequence, and an untranslated region that is located on the 5' or 3' side of the nucleotide sequence that encodes the protein;

 (2) contacting a nucleotide molecule with the RNA transcribed in step (1);

15 (3) detecting the RNA in step (2) or a translation product translated from the RNA; and

 (4) identifying a gene whose expression is altered by the nucleotide molecule based on the amount of the RNA or the translation product translated from the RNA
20 detected in step (3).

12. A method of screening for a gene whose expression is altered by a nucleotide molecule, the method comprising the steps of:

 (1) contacting a nucleotide molecule with the RNA
25 defined by claim 6 which has, as a nontranslatable

nucleotide sequence, a nucleotide sequence selected from the group consisting of a nucleotide sequence that encodes a protein in an arbitrary gene, a part of the nucleotide sequence, and an untranslated region that is located on the 5' or 3' side of the nucleotide sequence that encodes the protein;

(2) detecting the RNA in step (1) or a translation product translated from the RNA; and

(3) identifying a functional nucleotide molecule that alters expression of a target gene based on the amount of the RNA or the translation product translated from the RNA detected in step (2).

13. The method of screening for a gene whose expression is altered by a nucleotide molecule according to claim 11 or 12, wherein the nucleotide molecule is contacted with the RNA in a cell or in a cell-free protein synthesis system.